Course Name: Software Development Project

Course No: CSE 3106

Project Proposal For Software Development Project

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Project Title: Zen Screens, A screen saver software.

The Architecture Pattern we determined for:

Model-View-Controller(MVC) Pattern

Based on the requirements provided, an appropriate architecture pattern for the Zen Screens screen saver software could be the Model-View-Controller (MVC) pattern. MVC separates the concerns of an application into three interconnected components: the Model, View, and Controller. This separation helps in organizing code, improving maintainability, and facilitating flexibility.

Model-View-Controller (MVC) pattern in our project:

Model:

Description: The Model component represents the data and business logic of the application.

Accountabilities:

1. Manages configuration settings of the screen saver (e.g., duration before activation, chosen visuals).
2. Handles the logic for loading, managing, and displaying visuals (graphics, animations, images).
3. Manages interaction with the operating system to detect idle time and activate the screen saver accordingly.
4. Ensures data integrity and consistency.

Interactions:

Interacts with both View and Controller components.

View:

Description: The View component represents the presentation layer of the application, responsible for rendering user interface elements and displaying information.

Accountabilities:

1. Renders the configuration settings interface for users to customize the visuals of the screen saver.
2. Provides a preview of selected visuals to the user.
3. Displays user documentation and troubleshooting information.

Interactions:

Interacts with the Model to fetch data to be displayed and with the Controller to handle user input and actions.

Controller:

Description: The Controller acts as an intermediary between the Model and the View, handling user input, updating the Model, and triggering changes in the View.

Accountabilities:

1. Captures user input from the interface (e.g., configuration changes, activating the screen saver).
2. Updates the Model based on user input and interactions.
3. Triggers the display of the screen saver when the computer is idle for a specified duration.

Interactions:

Communicates with both the Model and the View, ensuring they remain decoupled and independent of each other.

Key Advantages of MVC Architecture:

Code Organization: Separation of concerns improves code organization, making it easier to understand and maintain.

Flexibility: Allows for easier modification or replacement of one component without affecting the others.

Scalability: Facilitates scalability as each component can be developed and tested independently.

The Model-View-Controller (MVC) architectural pattern is well-suited for the Zen Screens screen saver software, offering clear separation of concerns, enhanced maintainability, and flexibility in development and future modifications. By implementing MVC, the application can efficiently manage its data, presentation, and user interactions, providing an optimized and seamless user experience.

Graphical Representation of MVC pattern:

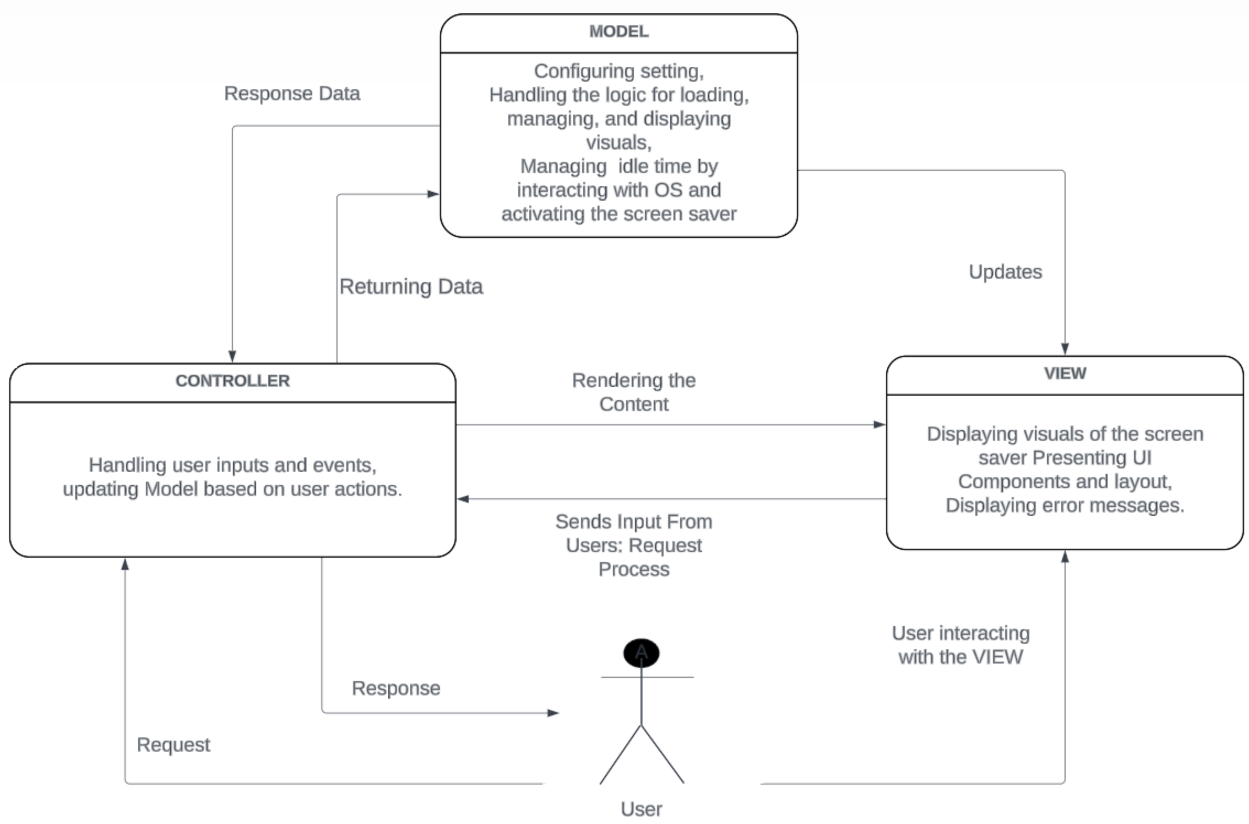
MODEL
Configuring setting,
Handling the logic for loading, managing, and displaying visuals,
Managing idle time by interacting with OS and activating the screen saver
Response Data
Returning Data
Updates
CONTROLLER
Handling user inputs and events, updating Model based on user actions.
Rendering the Content
Sends Input From Users: Request Process
VIEW
Displaying visuals of the screen saver Presenting UI Components and layout, Displaying error messages.
User interacting with the VIEW
Response
Request
A
User

Fig: Diagram of MVC in Zen Screens

(https://lucid.app/lucidchart/71448e09-41db-45c7-a40a-3cd3f6c46759/edit?viewport_loc=418%2C674%2C1120%2C618%2C0_0&invitationId=inv_8f6c52c8-29a2-462e-b3e9-0f3247ee53a2)